

AMENDMENTS TO THE CLAIMS

Claim 1-6 (canceled)

- 5 Claim 7 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:
- a transparent substrate;
 - an amorphous interface layer formed on the transparent substrate;
 - a top surface of the amorphous interface layer comprising a first surface region
 - 10 and a second surface region;
 - a p⁺-type contact layer formed on the first surface region;
 - a p-type cladding layer formed on the p⁺-type contact layer;
 - a multiple quantum well (MQW) light-emitting layer formed on the p-type cladding layer;
 - 15 an n-type cladding layer formed on the MQW light-emitting layer;
 - an n-type stop layer formed on the n-type cladding layer;
 - a transparent conductive layer formed on the n-type stop layer;
 - a first electrode formed on the transparent conductive layer; and
 - a second electrode formed on the second surface region.

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Claim 8 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a transparent substrate comprising sapphire;
- an amorphous interface layer formed on the transparent substrate, a top surface
- 25 of the amorphous interface layer comprising a first surface region and a second surface region;
- a contact layer of p⁺-type GaAs formed on the first surface region;
- a p-type cladding layer of p-type AlGaInP formed on the contact layer[.];
- a light-emitting layer of AlGaInP formed on the p-type cladding layer;

an n-type cladding layer of n-type AlGaInP formed on the light-emitting layer;
a stop layer of n-type AlGaAs formed on the n-type cladding layer;
an indium tin oxide (ITO) transparent conductive layer formed on the stop
layer[.];
5 a first electrode formed on the ITO transparent conductive layer[.]; and
a second electrode formed on the second surface region.

Claim 9 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

10 an ohmic contact electrode;
a p-type transparent substrate formed on the ohmic contact electrode;
a first p⁺-type contact layer formed on the transparent substrate;
an amorphous interface layer formed on the first p⁺-type contact layer;
a second p⁺-type contact layer formed on the amorphous interface layer;
15 a p-type cladding layer formed on the second p⁺-type contact layer;
a light-emitting layer formed on the p-type cladding layer;
an n-type cladding layer formed on the light-emitting layer;
an n-type stop layer formed on the n-type cladding layer;
a transparent conductive layer formed on the n-type stop layer; and
20 a first electrode formed on the transparent conductive layer.

Claim 10 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

an ohmic contact electrode;
25 a p-type GaP transparent substrate formed on the ohmic contact electrode;
a first p⁺-type contact layer of p⁺-type GaAs formed on the p-type GaP transparent substrate;
an indium tin oxide amorphous interface layer formed on the first p⁺-type contact layer;

- a second p⁺-type contact layer of p⁺-type GaAs formed on the indium tin oxide amorphous interface layer;
- a p-type cladding layer of a p-type AlGaInP formed on the second p⁺-type contact layer;
- 5 a multiple quantum well light-emitting layer of AlGaInP formed on the p-type cladding layer;
- an n-type cladding layer of n-type AlGaInP formed on the light-emitting layer;
- a stop layer of n-type AlGaAs formed on the n-type cladding layer;
- an indium tin oxide (ITO) transparent conductive layer formed on the stop layer;
- 10 a first electrode formed on the ITO transparent conductive layer.

Claim 11 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- 15 an n-type transparent substrate formed on the first electrode;
- an amorphous interface layer formed on the n-type transparent substrate;
- an n-type contact layer formed on the amorphous interface layer;
- an n-type cladding layer formed on the n-type contact layer;
- a light-emitting layer formed on the n-type cladding layer;
- 20 a p-type cladding layer formed on the light-emitting layer;
- a p-type buffer layer formed on the p-type cladding layer;
- a p⁺-type contact layer formed on the p-type buffer layer;
- a transparent conductive layer formed on the p⁺-type contact layer; and
- a second electrode formed on the transparent conductive layer.

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Claim 12 (currently amended): A light emitting diode having a transparent substrate, the light emitting diode comprising:

- a first electrode;
- a transparent substrate of n-type GaP formed on the first electrode;

an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate of n-type GaP;
a contact layer of n-type GaP formed on the ITO amorphous interface layer;
a cladding layer of n-type AlGaInP formed on the contact layer of n-type GaP;
5 a multiple quantum well (MQW) light-emitting layer of AlGaInP formed on the cladding layer of n-type AlGaInP;
a cladding layer of p-type AlGaInP formed on the MQW light-emitting layer of AlGaInP;
a buffer layer of p-type AlGaAs formed on the cladding layer of p-type AlGaInP;
10 a contact layer of p⁺-type GaAs formed on the buffer layer of p-type AlGaAs;
an indium tin oxide (ITO) transparent conductive layer formed on the contact layer of p⁺-type GaAs; and
a second electrode formed on the ITO transparent conductive layer.

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Claim 13 (original): A light emitting diode having a transparent substrate, the light emitting diode comprising:

a transparent substrate;
an amorphous interface layer formed on the transparent substrate, a top surface
20 of the amorphous interface layer comprising a first surface region and a second surface region;
an n⁺-type reverse-tunneling contact layer formed on the first surface region;
a p-type cladding layer of formed on the n⁺-type reverse-tunneling contact layer;
a light-emitting layer formed on the p-type cladding layer;
25 an n-type cladding layer formed on the light-emitting layer;
a first contact electrode formed on the n-type cladding layer; and
a second electrode formed on the second surface region.

Claim 14 (original): A light emitting diode having a transparent substrate, the light

emitting diode comprising:

- a transparent substrate comprising glass;
- an indium tin oxide (ITO) amorphous interface layer formed on the transparent substrate, a top surface of the ITO amorphous interface layer comprising a
5 first surface region and a second surface region;
- a reverse-tunneling contact layer of n^+ -type InGaN formed on the first surface region;
- a cladding layer of a p-type GaN formed on the reverse-tunneling contact layer of n^+ -type InGaN;
- 10 a multiple quantum well (MQW) light-emitting layer of InGaN formed on the cladding layer of a p-type GaN;
- a cladding layer of n-type GaN formed on the MQW light-emitting layer of InGaN;
- a first contact electrode formed on the cladding layer of n-type GaN;
- 15 a second electrode formed on the second surface region.